

Appendix A

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    <?xml version="1.0" encoding="UTF-8" ?>
- <model name="FieldKorosNoyesModel">
5 <notes>
    <h1>Field-Koros-Noyes Model of BZ Reaction</h1>
- <table border="0" cellspacing="0" cellpadding="2">
- <thead>
- <tr>
10 <th align="left" valign="middle" bgcolor="#eeeeee">Citation</th>
    </tr>
    </thead>
- <tbody>
- <tr>
15 <td>
    R.J.Field and R.M.Noyes,J.Chem.Phys.60,1877 (1974) ;
    R.J.Field,E.Koros,R.M.Noyes,JACS 94,8649 (1972);R.J.Field, R.M.Noyes,Nature
    237,390 (1972) This implementation is taken manufactured by J.D. Murray,
    "Mathematical Biology" (1989) page 181.
20 <a href="" />
    </td>
    </tr>
    </tbody>
    </table>
25 <table border="0" cellspacing="0" cellpadding="2">
- <thead>
- <tr>
    <th align="left" valign="middle" bgcolor="#eeeeee">Description</th>
    </tr>
30 </thead>
- <tbody>
- <tr>
    <td>Field Noyes Version of Belousov- Zhabotinsky Reaction. BrO3 is held
    constant; HOBr is typically ignored, and can be replaced by an empty- set. The
35 stoichiometry f is typically taken as 1/ 2 or 1 (denominator 1 or 2 in SBML)
    .</td>
    </tr>
    </tbody>
    </table>
40 <table border="0" cellspacing="0" cellpadding="2">
- <thead>
- <tr>
    <th align="left" valign="middle" bgcolor="#eeeeee">Rate constant    </th>
    <th align="left" valign="middle" bgcolor="#eeeeee">Reaction</th>
45 </tr>
    </thead>
- <tbody>
- <tr>
    <td>k1 = 1.3</td>

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    <td>Br + BrO3 -> HBrO2 + HOBr</td>
  </tr>
- <tr>
  <td>k2 = 2000000</td>
5 <td>Br + HBrO2 -> HOBr^2</td>
  </tr>
- <tr>
  <td>k3 = 34</td>
  <td>BrO3 + HBrO2 -> Ce^2 + HBrO2^2</td>
10 </tr>
- <tr>
  <td>k4 = 3000</td>
  <td>HBrO2^2 -> BrO3 + HOBr</td>
  </tr>
15 <tr>
  <td>k5 = 0.02</td>
  <td>Ce -> Br^f</td>
  </tr>
</tbody>
20 </table>
- <table border="0" cellspacing="0" cellpadding="2">
- <thead>
- <tr>
  <th align="left" valign="middle" bgcolor="#eeeeee">Variable</th>
25 <th align="left" valign="middle" bgcolor="#eeeeee">IC </th>
  <th align="left" valign="middle" bgcolor="#eeeeee">ODE</th>
  </tr>
</thead>
- <tbody>
30 <tr>
  <td>Br</td>
  <td>0.003</td>
  <td>Br'[t] == -(k1*Br[t]*BrO3[t]) + f*k5*Ce[t] - k2*Br[t]*HBrO2[t]</td>
  </tr>
35 <tr>
  <td>Ce</td>
  <td>0.05</td>
  <td>Ce'[t] == -(k5*Ce[t]) + 2*k3*BrO3[t]*HBrO2[t]</td>
  </tr>
40 <tr>
  <td>HBrO2</td>
  <td>0.001</td>
  <td>HBrO2'[t] == k1*Br[t]*BrO3[t] - k2*Br[t]*HBrO2[t] +
    k3*BrO3[t]*HBrO2[t] - k4*HBrO2[t]^2</td>
45 </tr>
- <tr>
  <td>HOBr</td>
  <td>0</td>
  <td>HOBr'[t] == k1*Br[t]*BrO3[t] + 2*k2*Br[t]*HBrO2[t]
50 + k4*HBrO2[t]^2</td>
  </tr>
</tbody>

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- <reaction name="Reaction4" reversible="false">
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- <reaction name="Reaction5" reversible="false">
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- <listOfParameters>
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40 </listOfReactions>
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</sbml>

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